

Request for Conditional Closure

Site: Active Power Plant Site, also known as Two-Party Agreement (TPA; NOAA 1996) Site 8 and National Oceanic and Atmospheric (NOAA) Site 8. The Active Power Plant Site is referred to as “the site” herein.

Location: St. George Island, Alaska is approximately 800 miles southwest of Anchorage in the Bering Sea (Figure 1). On the island, the site is located in the City of St. George approximately 70 feet northwest of the power plant and adjacent to the City office building (Latitude 56° 36' 10.28" N, Longitude 169° 32' 47.06" W; Figure 2).

Legal Property Description: The site is located in Lot 14 of Tract 43, Qawax Subdivision, which lies within Section 29, Township 41 South, Range 129 West of the Seward Meridian, Alaska, as shown on the plat of rectangular net survey, officially filed February 15, 1985 (Figure 2). The City of St. George owns the surface and subsurface estate.

Type of Release: Diesel fuel leaks, spills, and overflows associated with two underground storage tanks (USTs)

History and Background:

Two 4,000-gallon diesel fuel USTs were located at the site (Figure 3). These tanks supplied the power plant with fuel and were used for diesel storage exclusively. The Alaska Department of Environmental Conservation (ADEC) UST facility identification number for these tanks is 3047. According to a preliminary assessment by Ecology and Environment (E&E), the northern UST was installed in 1962, and the southern UST was installed in the early 1970s (E&E 1993); although, Woodward-Clyde (1995) reported that St. George public works personnel stated the tanks were installed in the early 1980s. The southern tank was used until July 1997. Until decommissioning, the tanks were fueled regularly, initially by the federal government and later by a contracted fuel supplier.

Vent and fill pipes were located directly above the tanks. The fuel feed and return lines ran underground between the tanks and the power plant building. Prior to the mid 1980s, the northern tank was filled from a fuel distribution network that ran underground from the diesel tank farm (E&E 1993, Polarconsult 1997a). After the pipeline was suspected to be leaking, tanker trucks were used to fill the USTs (E&E 1993).

Summary of Site Investigations:

Preliminary Assessment

In October 1992, E&E performed a preliminary assessment at the site, which was known as the “Power Plant USTs Site” at that time. Areas of stained surface soil were identified around the fill and vent pipes on both tanks. E&E stated that the tanks did not meet U.S. Environmental Protection Agency or ADEC requirements for leak detection, corrosion protection, and spill and overflow protection. E&E recommended further investigation of the petroleum-contaminated surface and subsurface soil to determine the nature and extent of contamination (E&E 1993).

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Expanded Site Inspection

During a 1994 expanded site inspection, Woodward-Clyde observed that soil staining was not limited to the fill and vent piping, but was widespread around both USTs and the power plant building. Eight test pits were excavated across the site to determine the extent of the contamination in soil (Figure 4). Fractured basalt bedrock was encountered at approximately 4 to 5 feet below ground surface (bgs) in all excavated test pit locations, and groundwater was not encountered during excavation activities. A total of four surface and eight subsurface samples were collected from the site. All samples were submitted to an onsite laboratory for total petroleum hydrocarbon (TPH), gasoline-range organics (GRO), diesel-range organics (DRO), volatile organic compounds (VOC), polychlorinated biphenyls (PCB), and metals. Two surface soil and two subsurface soil samples were sent to an offsite laboratory for confirmation analyses.

All four of the offsite laboratory samples (collected from test pits 1, 4, and 7) contained DRO, with concentrations varying from 220 to 3,700 milligrams per kilogram (mg/kg). The highest DRO concentration found was in test pit 4 at 4 feet bgs. The only other analyte detected in the offsite laboratory samples was tetrachloroethene, which was detected in the subsurface from test pits 4 and 7 at concentrations of 0.023 mg/kg and 1.9 mg/kg, respectively. Samples collected from test pits 4, 7, and 8 and analyzed onsite contained DRO at concentrations varying from 180 to 1,000 mg/kg. GRO, VOCs, and PCBs were not detected in any samples. Metals, including arsenic, cadmium, chromium, and lead were detected at concentrations consistent with the normal ranges of metals found in Alaska soil (Woodward-Clyde 1995).

Woodward-Clyde subcontracted Alaska Storage Tank Testing to conduct a UST integrity test on the active UST. The tightness test indicated that the UST and piping met ADEC requirements; leaking from the tank or associated piping was not apparent during the integrity test.

Environmental Site Investigation

Hart Crowser excavated two additional test pits south and southwest of Woodward-Clyde's test pit 4 (Hart Crowser 1997). Samples were collected from the surface, 4 feet bgs, and at the bottom of the excavated test pits, about 9 feet bgs. Six samples were collected and submitted to the field laboratory for diesel, gasoline, and oil analysis. Additionally, one sample from each test pit was submitted to the project laboratory for DRO analysis. Diesel, gasoline, and oil were not detected in soil samples collected from the test pits.

Groundwater Investigations

In 2001, NOAA installed monitoring wells TPA8-MW-1 through TPA8-MW-9 in the vicinity of the site. Additionally, in 2003, monitoring wells TPA8-MW-10 through TPA8-MW-13 were installed (Figure 5). Groundwater sampling was conducted in 2001 and 2002 (for wells installed in 2001); and in August 2003, November 2003, January 2004 and May 2004. Samples were analyzed for DRO, GRO, VOC, semi-volatile organic compounds (SVOC), and metals. Results are summarized below (NOAA 2005, Tetra Tech 2005a).

- Free product was observed in wells TPA8-MW-1, TPA8-MW-3, TPA8-MW-5, TPA8-MW-7, TPA8-MW-8, TPA8-MW-10, and TPA8-MW-12.

- Dissolved-phase DRO above the ADEC Table C criterion was found in wells TPA8-MW-2, TPA8-MW-4, TPA8-MW-6 (which was dry 4 out of 6 sampling events), and TPA8-MW-11.
- Perchloroethylene (PCE) above the Table C criterion was found in well TPA8-MW-2 in one sampling event (May 2004). The source of PCE is unknown.
- All analytes were below ADEC criteria in wells TPA8-MW-9 and TPA8-MW-13.

Summary of Applied Cleanup Levels:

Consistent with the TPA, for petroleum-contaminated soil NOAA relied on the interim soil guidance for non-UST soil cleanup levels (ADEC 1991) to establish site cleanup levels. The guidance employed a matrix to generate a score corresponding to a cleanup category of A, B, C, or D (18 Alaska Administrative Code [AAC] 78.315). The guidance stipulated that category A cleanup levels, the most stringent of the categorical cleanup levels, must be applied when groundwater has been impacted by the spill. Thus, NOAA determined that the applicable site cleanup levels are 50 mg/kg GRO, 100 mg/kg DRO, 2,000mg/kg RRO, 0.1 mg/kg benzene, and 10 mg/kg total benzene, toluene, ethylbenzene, and total xylenes (BTEX). Cleanup criteria were applied to the maximum extent practicable (ADEC 2003; 18 AAC 75.325(f), 18 AAC 75.990).

Summary of Cleanup Actions:

At the Active Power Plant Site in 1997, Polarconsult removed the two 4,000-gallon USTs and their associated piping, excavated contaminated soil, and collected and analyzed confirmation samples (Polarconsult 1997a and 1997b). Excavation revealed that the tanks were set in sand, which was discolored and had a strong fuel odor. System inspections during tank removal indicated that underground tank piping connections were made improperly, thereby leading to chronic leakage during tank filling operations.

Excavation around the USTs continued until diesel fuel concentrations subsided or further excavation was impracticable due to the risk of undermining buildings or the inability to penetrate fractured basalt. About 1,128 cubic yards of soil were removed from the site. Excavated soil was placed in an ADEC-approved petroleum-contaminated soil stockpile located on NOAA property on the north side of Zapadni Road, about 1 mile west of the City of St. George (Polarconsult 1996 and 1997a). Samples were collected from the excavation sidewalls, bottom, and intermediate locations around the site to establish contamination levels.

Results of confirmation sample analyses are summarized in Table 1. Polarconsult collected confirmation samples for DRO analysis from 31 locations. Of these, samples from 15 locations exceeded the site cleanup level. Analysis of BTEX was conducted on two samples. Results were below the site cleanup levels for benzene and total BTEX. One sample was analyzed for GRO, and results were below the GRO cleanup level. Polarconsult identified a large volume of darkly discolored soil just south of the southern UST. A sample collected from this location (SS060) was analyzed for waste oil constituents (arsenic, cadmium, chromium, lead, and halogenated volatile organic compounds). Only chromium was detected (17 mg/kg), and its concentration was below the cleanup level in 18 AAC 75.341 (ADEC 2003).

Following soil removal and sampling, the excavation was backfilled with material from the local scoria a pit. An impermeable plastic sheet was placed over the excavation and covered with scoria to reduce water infiltration (Polarconsult 1997a and 1997b).

Recommended Action:

Because NOAA has removed contaminated soil from the Active Power Plant Site, TPA Site 8/NOAA Site 8, to the extent practicable, and NOAA intends to address contaminated groundwater beneath the site under a separate corrective action plan, NOAA requests in accordance with paragraph 59 of the Two Party Agreement (NOAA 1996) written confirmation that it completed all appropriate corrective actions, to the maximum extent practicable, for contaminated soil at the site in accordance with the Agreement and that ADEC grant a conditional closure not requiring further remedial action from NOAA. NOAA understands ADEC will/may require additional containment, investigation, or cleanup if subsequent information indicates that the level of contamination that remains does not protect human health, safety, or welfare, or the environment.

References:

- Alaska Department of Environmental Conservation (ADEC). 1991. *Interim Guidance for Non-UST Contaminated Soil Cleanup Levels, Contaminated Sites Program*. July 17, 1991.
- ADEC. 2003. Title 18 of the *Alaska Administrative Code* 75, Articles 3 and 9. *Oil and Hazardous Substances Pollution Control Regulations*. State of Alaska. Amended through January 30.
- Ecology and Environment, Inc. (E&E). 1993. *Preliminary Assessment of National Oceanic and Atmospheric Administration Sites. Pribilof Islands, Alaska*. February.
- Hart Crowser. 1997. *Expanded Site Inspection, St. George Island, Pribilof Islands, Alaska, Volume I*. January.
- National Oceanic and Atmospheric Administration (NOAA). 1996. Pribilof Islands Environmental Restoration Two-Party Agreement, Attorney General's Office File No. 66 1-95-0126. National Oceanic and Atmospheric Administration. January 26.
- NOAA. 2005. *Final Long-term Groundwater Monitoring Plan, St. George Island, Alaska*. Pribilof Islands Environmental Restoration Project, St. George Island, Alaska.
- Polarconsult Alaska, Inc. (Polarconsult). 1996. Long-Term Containment Plan for the Storage of Contaminated Soil, Pribilof Restoration Project, St. George Island. Prepared for Alaska Department of Environmental Conservation. October 29.
- Polarconsult. 1997a. *Environmental Site Investigation, St. George Debris Cleanup and UST Decommissioning, Pribilof Islands Environmental Restoration Project, Volumes I and II*. November.

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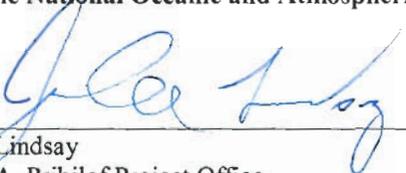
Polarconsult. 1997b. *Environmental Site Investigation, St. George Debris Removal Report, Pribilof Islands Environmental Restoration Project, Volume III*. December.

Tetra Tech EM Inc. (Tetra Tech). 2005. *Final Field Investigation Report, St. George Island, Alaska, Pribilof Islands Environmental Restoration Project, St. George Island, Alaska*. June 23.

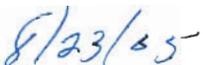
Woodward-Clyde. 1995. *Expanded Site Inspection St. George Island, Alaska*. Woodward-Clyde, Anchorage, Alaska. March.

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For the National Oceanic and Atmospheric Administration



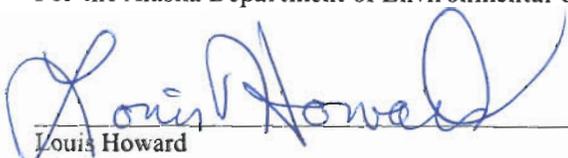
John Lindsay
NOAA, Pribilof Project Office



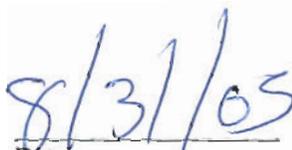
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Approvals: In accordance with Paragraph 59 of the Two Party Agreement, this is to confirm that all soil corrective action has been completed to the maximum extent practicable at the Active Power Plant Site, TPA Site 8/Site 8 in accordance with the Agreement and that no further remedial action is required as a part of this conditional closure granted by ADEC.

For the Alaska Department of Environmental Conservation



Louis Howard
Alaska Department of Environmental Conservation
Remedial Project Manager



Date

Tables and Figures

Table 1. Confirmation Sample Results, Active Power Plant, TPA Site 8, Site 8

a) Results of Soil Samples Analyzed for Diesel

Sample Number	Depth (ft)	DRO (mg/kg)
SS 052	10.4	513
SS 053	9.5	75
SS 054	4.5	2930
SS 055	14.4	7900
SS 056	4.9	60
SS 058	3.9	13
SS 060	8.6	807
SS 061	11.1	1660
SS 062	5.9	37
SS 063	9	3620
SS 065	8.3	28
SS 070	14.4	-
SS 071	8.6	-
SS 072	3.1	8180
SS 073	3.7	133
SS 074	5.9	813
SS 075	4.1	1640
SS 076	4.3	8
SS 077	10.1	31
SS 078	6.2	9
SS 079	6.1	1460
SS 080	5.8	7
SS 081	9.9	533
SS 082	4.5	2600
SS 083	4.9	13
SS 084	4.1	946
SS 085	6.9	U
SS 086	5	U
SS 087	7.1	U
SS 088	5.8	21
SS 089	9.5	1560
SS 090	9.5	2580
SS 091	9.8	1410
SS 092	5.5	20
SS 093	3.4	14
Site Cleanup Level		100

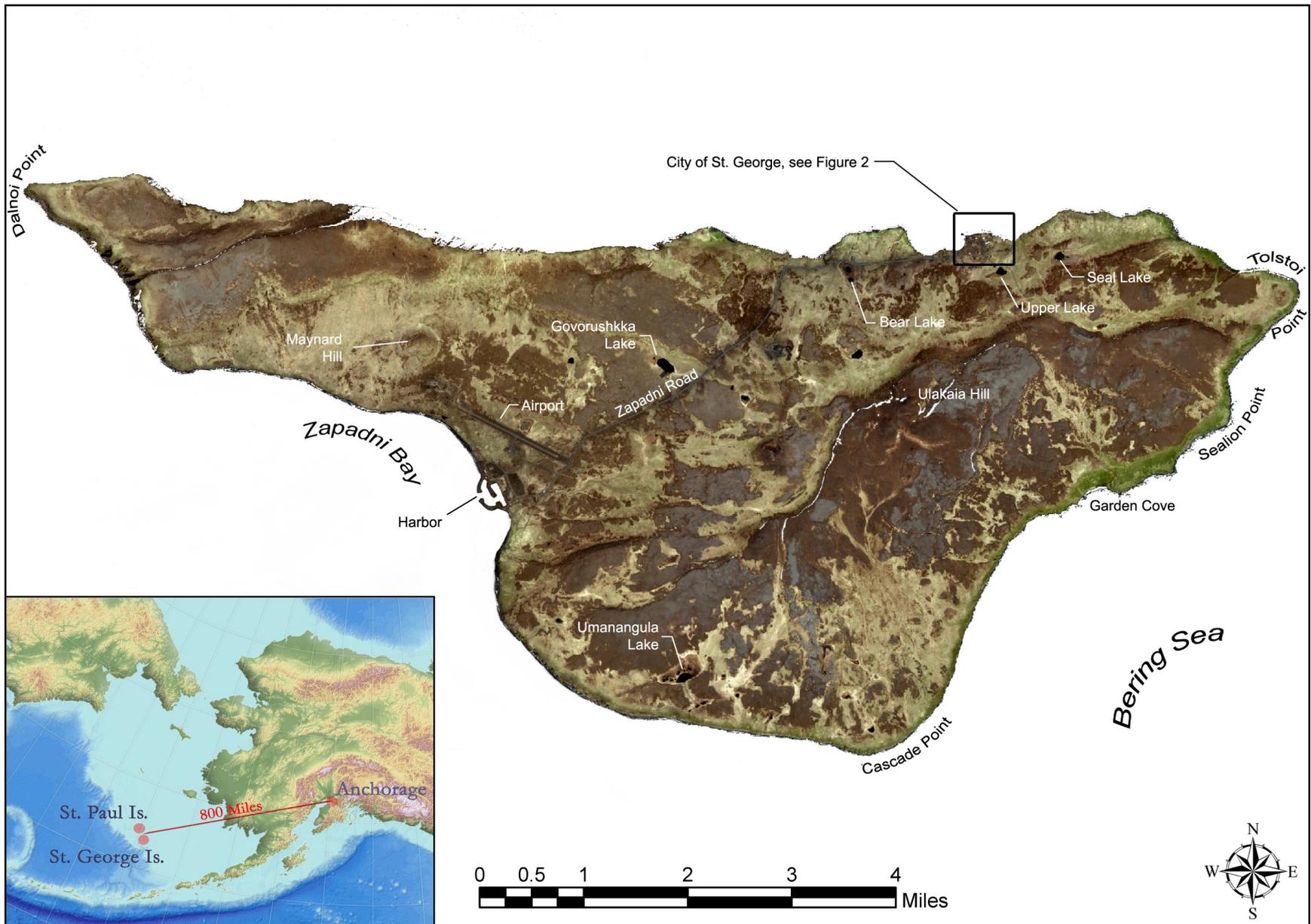
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b) Results of Select Soil Samples Analyzed for Additional Constituents

Sample Number	Depth (ft)	Lead (mg/kg)	Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	GRO (mg/kg)	Bezene (mg/kg)	Total BTEX (mg/kg)	RRO (mg/kg)	HVO (mg/kg)
SS 058	3.9	-	-	-	-	-	-	-	U	-
SS 060	8.6	U	U	0	17	-	-	-	U	U
SS 070	14.4	-	-	-	-	-	U	3.4	-	-
SS 071	8.6	-	-	-	-	5.7	U	0.09	-	-

Notes:

- mg/kg milligrams per kilogram
- ft feet
- BTEX benzene, toluene, ethylbenzene, xylene
- DRO diesel-range organics
- GRO gasoline-range organics
- HVO halogenated volatile organics
- RRO residual-range organics
- U indicates sample was analyzed but not detected
- indicates sample was not analyzed
- ### concentration exceeds site cleanup level



Figure

1

**Island and Vicinity Map
Active Power Plant
TPA Site 8/Site 8
St. George Island, Alaska**

Source: Ikonos 2001 Satellite Image





Figure

2

**Legal Property Description Map
Active Power Plant
TPA Site 8/NOAA Site 8
St. George Island, Alaska**

Source: AeroMap U.S. 9/28/96 Aerial
Photograph; Bureau of Land
Management Land Survey Filed
February 15, 1985



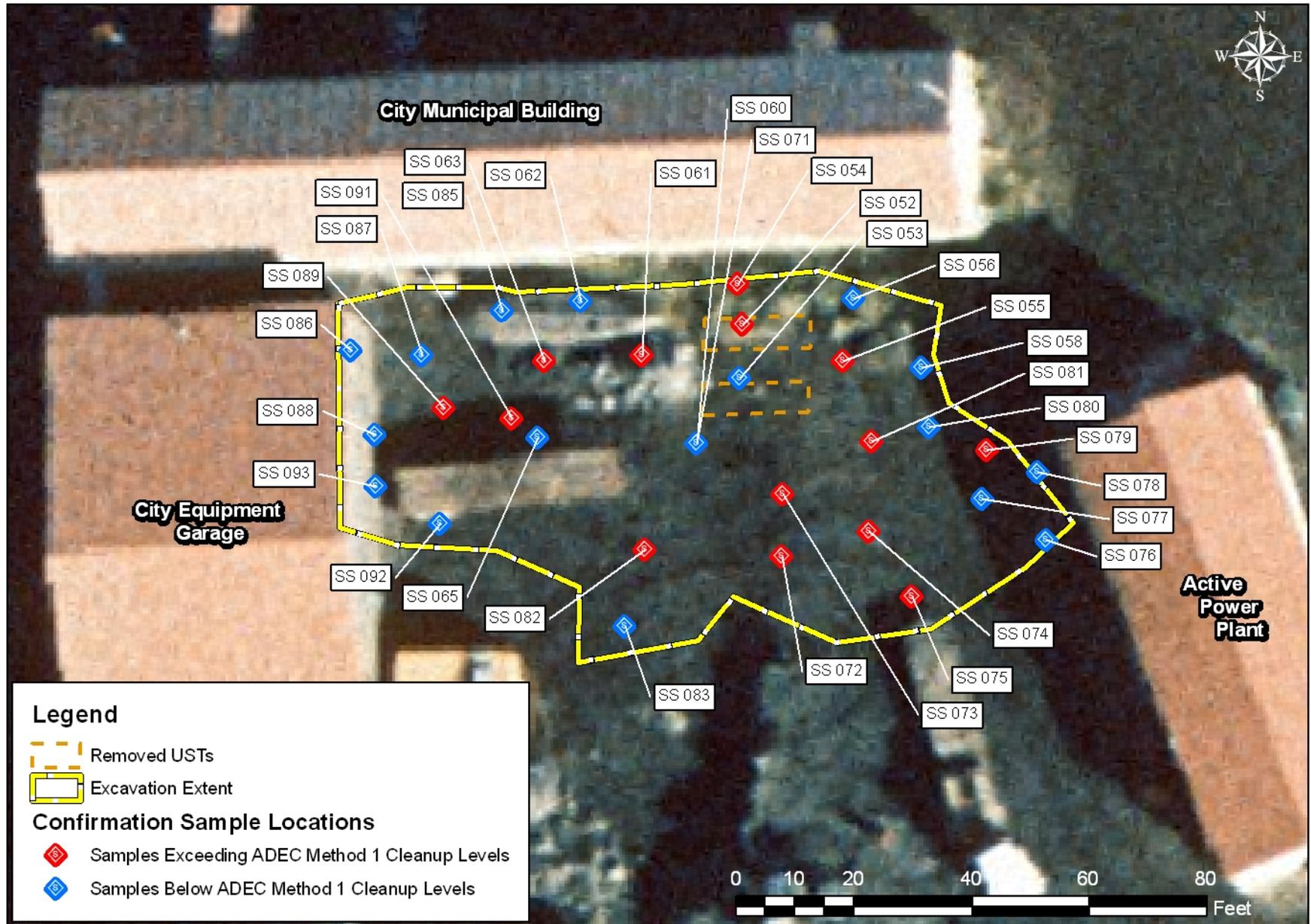
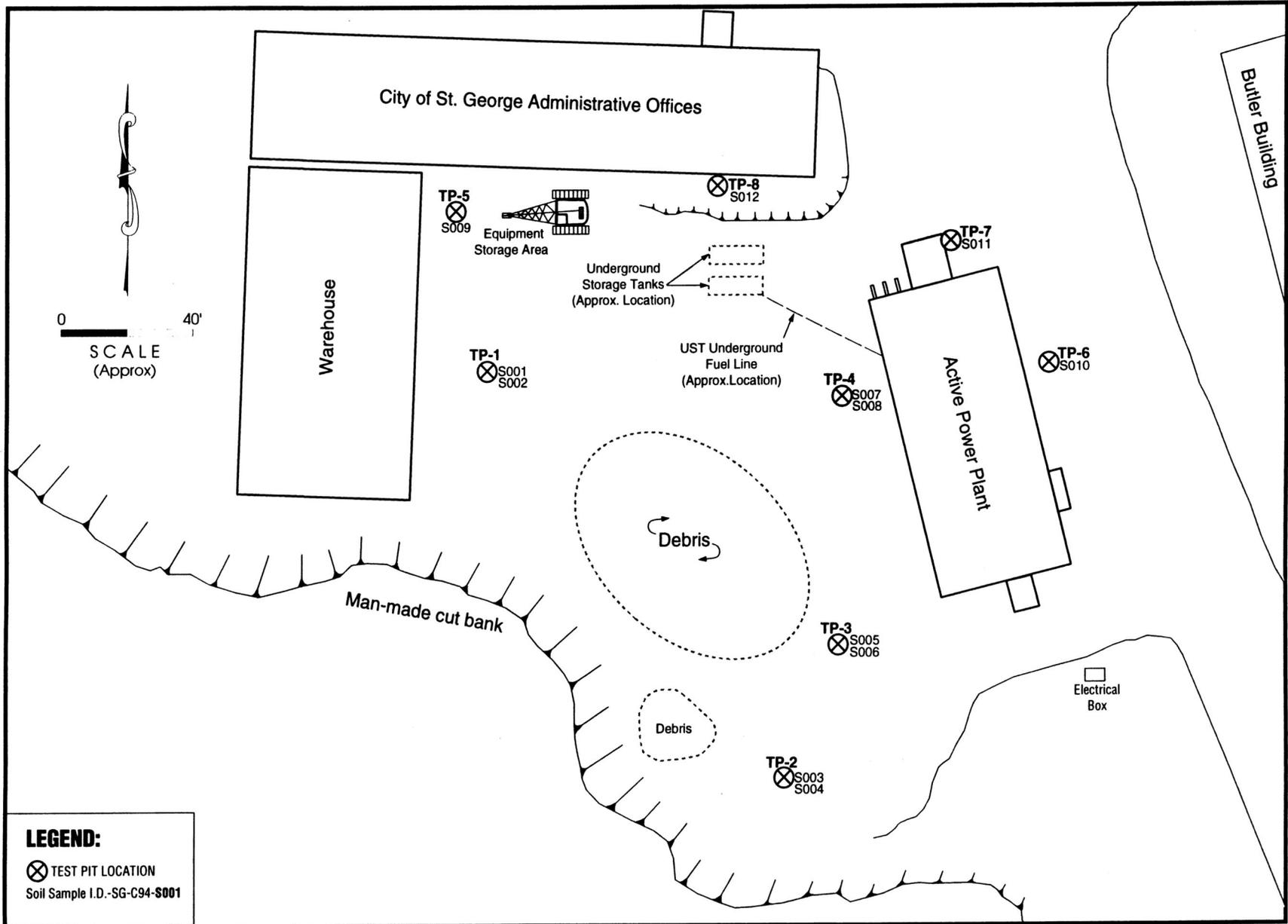


Figure
3

Excavation and Confirmation Sample Locations Active Power Plant TPA Site 8/NOAA Site 8 St. George Island, Alaska

Source: Environmental Site Investigation St. George Debris Cleanup & UST Decommissioning, Polarconsult Alaska, Inc. 11/97

Note: See Table 1 for sample results.



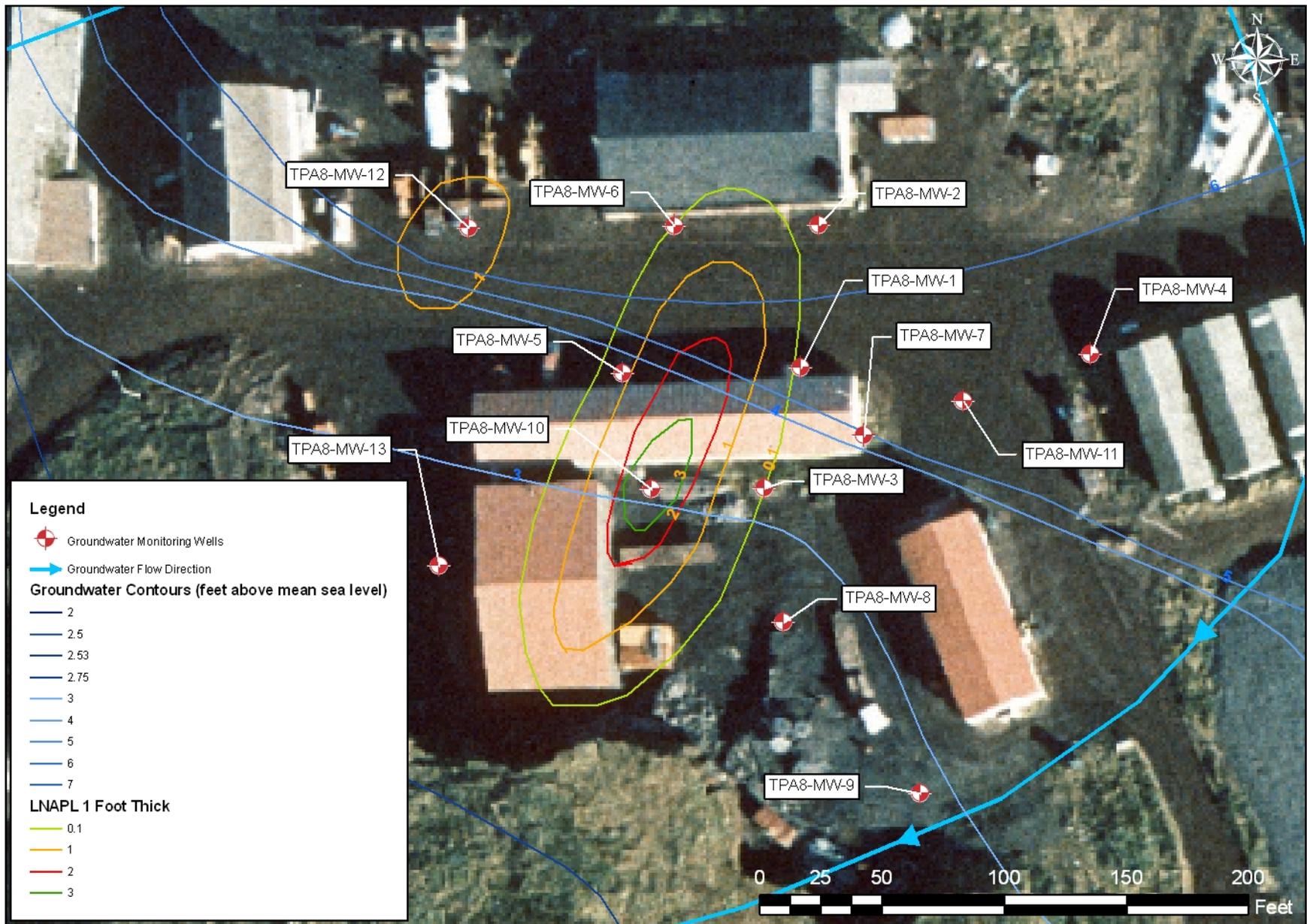
Figure

4

**Test Pit Locations
Expanded Site Inspection 1994
Active Power Plant
TPA Site 8/NOAA Site 8
St. George Island, Alaska**

Source: Expanded Site Inspection,
St. George Island, Woodward Clyde 3/95





Figure

5

**Groundwater Characterization
Active Power Plant
TPA Site 8/NOAA Site 8
St. George Island, Alaska**

Source: Aeromap U.S. 9/28/96 Aerial Photograph; Tetra Tech EM Field Investigation Report, St. George Island, June 23, 2005.

